

VERSION WITH MARKINGS TO SHOW CHANGES MADE

4. (TWICE AMENDED) The method according to claim 1,  
wherein step (B) further comprises the sub-step of:

generating a list of layout coordinates and [schematic  
instance] paths in said design as part of said compiling.

R E M A R K S

Careful review and examination of the subject application are noted and appreciated.

The present invention concerns a method of verifying a repair of a design. The method generally comprising the steps of, (A) generating an enumeration of a plurality of fuses in the design, (B) compiling data for each of the fuses, wherein the data comprises simulation path data, and (C) simulating the design with at least one of the fuses programmed for the repair to verify the repair.

SUPPORT FOR THE CLAIM AMENDMENTS AND NEW CLAIMS

The amendment to claim 4 only involves deleting a prefix. Thus, no new matter has been added and no new issues have been raised.

SUPPORT FOR THE PROPOSED DRAWING AMENDMENT

Support for the proposed drawing amendment can be found, for example in the specification on page 14, line 20 through page 15, line 2 as originally filed. Thus, no new matter has been added.

SPECIFICATION OBJECTION

The specification objection based on FIG. 1 and FIG. 2 is respectfully traversed and should be withdrawn. FIG. 1 shows a **method** in accordance with a preferred embodiment of the present invention. FIG. 2 shows an example **apparatus** implementing the present invention. The apparatus and method diagrams are generally considered to be separate embodiments in that the apparatus diagram shows structure while the method diagram is focused on functional operation. Since the identification of FIG. 1 as a method was disclosed in the specification on page 4, lines 13-15 as originally filed and FIG. 2 has been clearly identified as an example apparatus in the September 17, 2002 amendment, any further clarification in the specification would appear to be redundant.

DRAWING OBJECTION

The objection to FIG. 3 has been obviated by the proposed amendments to the drawings, shown in red as submitted herein, and thus should be withdrawn. Approval of the proposed drawing amendments by the Examiner is respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §112

The rejection of claims 1-20 under 35 U.S.C. §112, first paragraph, has been obviated by appropriate amendment in part and is respectfully traversed in part and should be withdrawn.

The phrase "schematic instance paths" in pending claim 4 has been amended to just "paths" to eliminate any perceived enablement problem associated with the words "schematic instance" in the interest of advancing the prosecution.

The Office Action has failed to make a *prima facie* case that the pending claims 1-20 are not enabled and thus the rejection should be withdrawn. In particular, M.P.E.P. 2164.04 generally states that a *prima facie* case for non-enablement provides (1) a rational basis as to (a) why the disclosure does not teach or (b) why to doubt the objective truth of the statements in the disclosure that purport to teach (2) the manner and process of making and using the invention (3) that corresponds in scope to the claimed invention (4) to one of ordinary skill in the pertinent technology (5) without undue experimentation and (6) dealing with subject matter that would not already be known to the skilled person as of the filing date of the application. Pages 6-7 of the Office Action only provide a conclusory statement, "The specification does not adequately describe this phase." for each rejected claim. A conclusory statement is not a specific finding of fact for the items outlined above for M.P.E.P. 2164.04. Therefore, a *prima facie* case for non-enablement has not been established in the Office Action. As such, the rejection under 35 U.S.C. §112, first paragraph should be withdrawn.

The rejection of claims 1, 4, 7, 18 and 19 under 35 U.S.C. §112, second paragraph, is respectfully traversed and should be withdrawn.

The phrase "schematic instance paths" of pending claim 4 has been amended to just "paths" to eliminate any perceived indefiniteness problem associated with the words "schematic instance" in the interest of advancing the prosecution.

The Office Action has not established a *prima facie* case that the pending claims 1, 4, 7, 18 and 19 are indefinite. A *prima facie* case of indefiniteness generally establishes (1) interpretation of the claims in light of the specification, (2) interpretation of the claims as one of ordinary skill in the art would interpret, and (3) that the limitation(s) in the claims, or the subject matter not in the claims, does not reasonably define the invention. Page 7 of the Office Action only provides a conclusory statement, "This phrase is not adequately defined." for each rejected claims. A conclusory statement is not evidence for the items outlined above. Therefore, a *prima facie* case of indefiniteness has not been established in the Office Action. As such, the rejection under 35 U.S.C. §112, second paragraph should be withdrawn.

The rejection of claim 3 under 35 U.S.C. §112, fourth paragraph, is respectfully traversed and should be withdrawn.

37 CFR 1.126 states, "The original numbering of the claims **must be preserved** throughout the prosecution. When claims are canceled the remaining claims must not be renumbered. When claims are added, they **must be numbered** by the applicant consecutively beginning with the number next following the highest numbered claim previously presented (whether entered or not). When the application is ready for allowance, the examiner, if necessary, will renumber the claims consecutively in the order in which they appear or in such order as may have been requested by applicant." (Emphasis added) Also see M.P.E.P. 608.01(j).

The September 17, 2002 amendment added claim 14 and changed the dependency of claim 3 from claim 1 to claim 14 in compliance with 37 C.F.R. 1.126. Since claim 14 depends directly from claim 1 and claim 3 depends from claim 14, claim 14 is "previously set forth" relative to claim 3 **during prosecution**. Claims 3 and 14 should be renumbered **after allowance** to achieve an ascending numerical order. As such, pending claim 3 is properly dependent from claim 14 and the rejection should be withdrawn.

#### CLAIM REJECTIONS UNDER 35 U.S.C. §103

The rejection of claims 1, 5-7, 12-16 and 18-19 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section of the instant application in view of Kablanian

et al. '878 (hereafter Kablanian) is respectfully traversed and should be withdrawn.

The rejection of claims 2-3 and 17 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section in view of Kablanian '878 and Tzori '044 is respectfully traversed and should be withdrawn.

The rejection of claim 4 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section in view of Kablanian '878 and Sample et al. '967 (hereafter Sample) is respectfully traversed and should be withdrawn.

The rejection of claims 8-10 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section in view of Kablanian '878 and Higgins et al. '349 (hereafter Higgins) is respectfully traversed and should be withdrawn.

The rejection of claim 11 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section in view of Kablanian '878 and Higgins '349 and Official Notice is respectfully traversed and should be withdrawn.

The rejection of claim 20 under 35 U.S.C. §103(a) as being obvious over the Background of the Invention section in view of Kablanian '878 and Official Notice is respectfully traversed and should be withdrawn.

Kablanian teaches a built-in self repair system for embedded memories (Title). Tzori teaches a concurrent hardware-

software co-simulation (Title). Sample teaches a method and apparatus for design verification using emulation and simulation (Title). Higgins teaches built-in self-test and self-repair methods and devices for computer memories comprising a reconfigurable memory device (Title). The Official Notice has been taken that it is well known in the art to write files for future use or to create a permanent record. The Background of the Invention section of the instant application, Kablanian, Tzori, Sample, Higgins and the Official Notice alone, or in combination, do not appear to teach or suggest every element as arranged in the pending claims.

"[T]o establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicants."<sup>1</sup> "[T]he factual inquiry whether to combine references must be thorough and searching."<sup>2</sup> "This factual question ... [cannot] be resolved on subjective belief and unknown authority."<sup>3</sup> "It must be based on

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<sup>1</sup> *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000) (citing *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)).

<sup>2</sup> *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001).

<sup>3</sup> *In re Lee*, 277 F.3d 1338, 1343-44, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002).

objective evidence of record."<sup>4</sup> The Examiner must show that (a) there is some suggestion or motivation, either in the references or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references, (b) there is a reasonable expectation of success, and (c) the prior art reference (or combination of references) teaches or suggests all of the claim limitations as arranged in the claims.<sup>5</sup> The Office Action does not appear to establish a *prima facie* case of obviousness for lack of motivation, a reasonable expectation of success, and teaching or suggesting all of the claim limitations as arranged in the claims. As such the pending claims are fully patentable over the cited references and the rejection should be withdrawn.

Applicants' respectfully traverse the assertion that statements made in the Background of the Invention section of the instant application constitute admissions of prior art. The statements made generally include "conventional" information known to the Applicants. No admission is made that any such statements qualify or do not qualify as prior art under 35 U.S.C. §103.

Pending claims 1 (method), 12 (apparatus) and 13 (means) provide simulating a design with at least one of a plurality of fuses programmed for a repair to verify the repair. Assuming, *arguendo*, that the proposed combination of the Background of the

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<sup>4</sup> *Id.* at 1343, 61 USPQ2d at 1434.

<sup>5</sup> M.P.E.P. §2142.

Invention and Kablanian would have been obvious (for which the Applicants' representative does not necessarily agree), the proposed combination still does not teach every element of the pending claims. Despite the suggestion on page 9, item 52 of the Office Action, Kablanian does not appear to teach or suggest simulating a design with at least one fuse programmed for a repair to verify the repair. In particular, column 1, line 63 through column 2, line 14 of Kablanian teach a repairing scheme involving testing, analyzing, repairing and retesting an ASIC memory chip. Testing, analyzing, repairing and/or retesting do not teach or suggest simulating. Testing, repairing and retesting are commonly performed on an actual device while simulating is performed on a model or representation of the device. Analyzing generally processes data received from the actual device testing while simulating exercises the model. The rest of Kablanian also appears to be silent with respect to simulating. Therefore, Kablanian and the Background of the Invention of the instant application alone, or in combination, do not appear to teach or suggest simulating a design with at least one of a plurality of fuses programmed for a repair to verify the repair as presently claimed.

Furthermore, a prima facie case of obvious has not been established to combine the teachings of Kablanian with the Background of the Invention. In particular, (i) no evidence of a reasonable expectation of success has been provided and (ii) the

asserted motivation does not appear to apply to the present invention. The Office Action is silent regarding a reasonable expectation for success of the proposed combination. In the absence of evidence for a reasonable expectation of success, no *prima facie* case has been established.

Furthermore, the asserted motivation to "determine the optimal utilization" does not appear to apply to the present invention. As stated in the preamble of claim 1, the invention is a method of verifying a repair of a design. No explanation has been provided in the Office Action why one of ordinary skill in the art seeking to verify a repair of a design would look to Kablanian in search of an optimal utilization of some unspecified characteristic. No explanation has been provided on or "as to" how optimization relates to the present invention. A conclusory statement quoting only four words is not evidence of motivation. Therefore, no *prima facie* case of obviousness has been established in the Office Action due to a lack of (i) evidence for a reasonable expectation of success and (ii) motivation to combine. As such, the pending claims are fully patentable over the cited reference and the rejection should be withdrawn.

The Office Action has provided no evidence that the Background of the Invention and/or Kablanian teach or suggest the claimed structure provided by the pending claims 12 (apparatus) or claim 13 (means). Claim 12 provides a first circuit and a second

circuit. Claim 13 provides a means for generating, a means for compiling and a means for simulating. No argument is made in the Office Action that the references teach or suggest a first circuit or a second circuit as presently claimed. No argument is made in the Office Action that the references teach or suggest a means for generating, a means for compiling or a means for simulating as presently claimed. As such, the pending claims are fully patentable over the cited reference and the rejection should be withdrawn.

Regarding claims 1, 14-16 and 18-19, page 9, item 29 of the Office Action states that the two sentences on page 1, lines 16-20 (Background of the Invention) of the pending application teach the step (B) compiling data for each one of a plurality of fuses, wherein the data comprises simulation path data from pending claim 1. Page 1, lines 16-20 of the application read, "The conventional methods to manually associate the fuse path to the fuse locations, or vice versa, use a layout versus schematic (LVS) cross-probe user-interface. Conventional verilog simulation paths are derived by manual translation of schematic paths aided by visual inspection of a netlist." However, page 14, item 100 of the Office Action states that the same two sentences in the Background of the Invention teach that the data further comprises schematic path data from claim 14. Page 15, item 103 of the Office Action states that the same two sentences teach that the data further

comprises physical layout data from claim 15. Page 15, item 106 of the Office Action further states that the same two sentences teach the step of mapping a plurality of co-ordinates of the fuses to a plurality of verilog statements from claim 16. Therefore, the Office Action appears to provide conflicting arguments for several claims. If the two sentences from the Background of the Invention teach or suggest a step from claim 1, then the same two sentences cannot also teach different elements in claims 14, 15 and 16. Likewise, if the two sentences teach an element from claim 14, then the same two sentences cannot also teach different elements in claims 1, 15 and 16, and so on. The Examiner is respectfully requested to either (i) withdraw the rejection or (ii) provide a single explanation of how the Examiner interprets the two sentences on page 1, lines 16-20 of the Background of the Invention and how the interpretation is applied to the claims.

Furthermore, page 16, item 113 of the Office Action states that the same two sentences starting at page 1, line 16 of the pending application also teach a structure that provides an elevation of the fuses at least one level of abstraction in a design as in claim 18. In addition, page 16, item 116 of the Office Action states that the same two sentences of the pending application also teach a structure that collects data relevant to the fuses that are grouped as in claim 19. Here too, the Office Action appears to provide conflicting arguments for claims 18 and

19. The Examiner is respectfully requested to either (i) withdraw the rejection or (ii) provide an explanation how the two sentences simultaneously teach two different structures (in addition to the four different elements listed above) from pending claims 18 and 19.

Regarding claims 5-7 and 10, page 11, item 71 of the Office Action states that the sentence on page 1, lines 14-15 of the pending application teaches the step of generating a fuse report from pending claim 5. Page 1, lines 14-15 of the application read, "Conventional methods exist to manually associate a fuse path to a fuse location or the fuse location to the fuse path, one at a time." Page 11, item 74 of the Office Action states that the same sentence also teaches the step of listing physical locations of a device in the design in response to the fuse report from claim 6. Page 12, item 77 of the Office Action states that the same sentence also teaches the step of generating a repair file that predicts at least one of a plurality of fuses programmed for a repair from claim 7. Furthermore, page 13, item 88 of the Office Action states that the same sentence teaches the step of listing an output of a repair program as a list of coordinates for at least one of a plurality fuses programmed for a repair in terms of a plurality of logical addresses from claim 10. The Examiner is respectfully requested to either (i) withdraw the rejection or (ii)

provide a single explanation of how the Examiner interprets the sentence and how the interpretation is applied to the claims.

Regarding claim 4, the Office Action does not appear to provide a reasonable motivation to combine Sample with the other references. Page 11, item 68 of the Office Action asserts that the motivation to combine Sample is because "the transistor list of layout specification is used to bum [sic] fuses". In contrast, the preamble of claim 1 provides a method of verifying a repair of a design. No explanation has been provided why one of ordinary skill in the art seeking to **verify a repair of a design** would be motivated to look to Sample to find a transistor list used to **burn fuses as part of manufacturing a device**. The conclusory statement of motivation provided in the Office Action is not evidence. Therefore, no *prima facie* case of obviousness has been established to combine Sample. As such, the pending claim is fully patentable over the cited reference and the rejection should be withdrawn.

Regarding claim 8, assuming, *arguendo*, that it would have been obvious to combine the teachings of the Background of the Invention, Kablanian and Higgins (for which Applicants' representative does not necessarily agree), the resulting combination does not teach or suggest every element as arranged in pending claim 8. In particular, pending claim 8 provides creating a repair program in response to a repair file. In contrast, page 12, item 80 of the Office Action states that Higgins teaches that

location information is supplied to a controller for a laser repair device which achieves a hardware fix. However, the Office Action and Higgins appear to be missing a connection between the claimed repair program and the claimed repair file. If the location information taught by Higgins is interpreted by the Examiner as the claimed repair program, there is no indication in Higgins that the location information is created in response to a repair file. If the location information taught by Higgins is interpreted by the Examiner as the claimed repair file, the step of creating a repair program in response to the location information appears to be missing from Higgins. Therefore, the Background of the Invention, Kablanian and Higgins alone, or in combination, do not appear to teach or suggest creating a repair program in response to a repair file as presently claimed. As such, the pending claim is fully patentable over the cited references and the rejection should be withdrawn.

Regarding claim 17, the prior art cited by the Office Action does not appear to disclose or suggest every element as arranged in the claim. Pending claim 17 depends from claim 8 which provides the step of creating a repair program in response to a repair file. Page 12, item 79 of the Office Action admits that the creating a repair program step is not found in the Background of the Invention of the pending application or in Kablanian. The rejection of claim 17 only adds Tzori to the rejection. However,

no explanation is provided in the Office Action of how Tzori teaches or suggests creating a repair program. Therefore, the Background of the Invention, Kablanian and Tzori alone, or in combination, do not appear to disclose or suggest the step of creating a repair program in response to a repair file as presently claimed. As such, the pending claim is fully patentable over the cited reference and the rejection should be withdrawn.

Claims 2-11 and 14-20 depended either directly or indirectly from independent claims 1 and 12, which are believed to be allowable. As such, the presently pending invention is fully patentable over the cited references and the rejection should be withdrawn.

**FINALITY OF THE OFFICE ACTION**

Applicant's representative respectfully requests reconsideration of the finality of the September 23, 2002 Office Action. M.P.E.P. §706.07(a) states: "Under present practice, second or any subsequent action on the merits shall be final, **except** where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p)" (Emphasis added). Furthermore, 37 C.F.R. §1.104(b) states: "(b) Completeness of

examiner's action. The examiner's **action will be complete as to all matters**, except that in appropriate circumstances, such as misjoinder of invention, fundamental defects in the application, and the like, the action of the examiner may be limited to such matters of form need not be raised by the examiner until a claim is found allowable." (Emphasis added)

The Office Action provides new grounds of rejection that were neither necessitated by amendment of the claims or based on an information disclosure statement. The new grounds of rejection could have been made by the Examiner in earlier Office Action, but were not. Example of the new grounds of rejection include, but may not be limited to, rejecting (i) claims 1-13 under 35 U.S.C. 112, first paragraph due to FIG. 3, (ii) claim 4 under 35 U.S.C. 112, first paragraph for "schematic instance paths" and (iii) claim 4 under 35 U.S.C. 112, second paragraph for "schematic instance paths". As such, the final rejections are premature and should be withdrawn. Therefore, the Applicants' representative respectfully requests that either (i) claims 1-20 be allowed or (ii) any subsequent rejections regarding claims 1-20 be presented in a non-final Office Action.

Accordingly, the present application is in condition for allowance. Early and favorable action by the Examiner is respectfully solicited.

The Examiner is respectfully invited to call the Applicants' representative should it be deemed beneficial to further advance prosecution of the application.

If any additional fees are due, please charge our office Account No. 50-0541.

Respectfully submitted,

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